

AVIATION WEEK

JAN. 5, 1948

A McCRAW HILL PUBLICATION

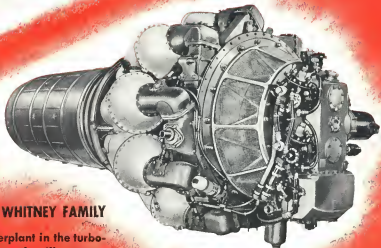


Nene

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The Nene engine, first aircraft powerplant in the turbo-jet field to bear the Pratt & Whitney seal, will power a substantial part of the Navy's new fleet of Grumman F9F Panthers — latest type of shipboard fighter.

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Age — 20-25 years
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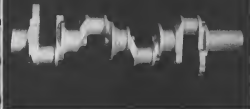
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THE AVIATION WEEK

PLANNING VS. PRODUCTION—Yearlong announcements by the Air Force and the Navy of contracts for new aircraft present few interesting possibilities that industry (looking on industrial preparedness planning for aircraft manufacturers may have been sharply revised.

While there can be no grounds for a definite belief that any of the new contracts reflect abandonment of preliminary ideas of industrial preparedness formulated more than a year ago, they certainly point to a modification of those ideas. In a number of aspects it would appear that the Air Force, in particular, has been forced by reasons of expediency to modify the original concept of industrial preparedness planning.

As far as the manufacturers' immediate financial situation is concerned, that could be an encouraging development.

The most industrial preparedness program was based on the theory that it would not be possible in peacetime to maintain high levels of production in any type of aircraft. The alternative that then was presented was to plan for rapid expansion of production of several basic types. High volume tooling would be prepared for these types, and the cost would be so high that it might preclude actual quantity production for some time to come.

Contracts in announced clash in some degree with this position. The hundreds of planes ordered from Republic, Lockheed, North American and Boeing obviously are to be built quickly by the U. S. Air Force, with delivery to begin on new types this summer. This definite production rate high enough to make a certain amount of high volume tooling profitable.

PLANES, NOT PLANS NEEDED—Before the President's Air Policy Commission, manufacturers and government officials stressed that the immediate need is for production of airplanes. While few disputed the principle of preparedness planning, they all inclined to the belief that planning is no answer in the present crisis situation.

The contracts reported in this issue of Aviation Week should alleviate the financial problems of several manufacturers. The concentration of the contracts with relatively few manufacturers would indicate that the Air Force is presently concerned with actual defense considerations, rather than with an attempt—in specialing available funds aimed—to keep the bulk of the industry on at least a subsistence diet.

An important point to be considered in evaluating the new orders is that under law, funds to pay for the planes must be available only until June 30, 1946, unless re-appropriated. This, again, points to rapid production as it is unlikely that the Air Force's plans envision re-appropriation in a tight federal economy. Undoubtedly,

the Air Force's dream would be to have fiscal 1950 funds only for new obligations.

The fact that USAF has, in effect, "shot its wad" gives some reason to believe that the service chiefs have now decided that chances for appropriations large enough to guarantee a truly high level of production are better than they were when the industrial preparedness plans were first put on the walls.

CASE IN POINT—Is a contradictory view, the new contracts offer a case for industrial preparedness planning. The airplanes involved were all conceived several years ago, most of them during the war. They have only now reached the stage of production. That is the main argument of the industrial preparedness planners—that the lag between conception and production of an aircraft is so great that long-range planning is imperative.

It may be significant that USAF awarded contracts for the North American B-45 and P-46 before the planes had completed tests. Navy likewise gave WAA an order for the F-1 before it had finished its tests, and either has or shortly will award an order to Grumman for its F6F-2 while it is still in the experimental stage. It followed the same procedure with the McDonnell F2H-1.

This is a system that had not been practiced before in peacetime and, while demonstrating the urgency of the service's need for modern equipment, also cuts down the time lag between design and production. Because of this time-saving element, the procedure of buying before the drawing board is in itself an industrial preparedness measure.

SELLING ARGUMENT—While containing an element of risk (that the plane may later have to undergo extensive redesign with consequent production delays), the risk is reduced by the experience and qualification of the manufacturers. The risk is well-calculated from the standpoint that it has advantages over the basic industrial preparedness plan in making possible the drawing of a tangible article rather than plans when the services try to sell their budget requests to the public and Congress.

It is highly likely that despite the effort they have put forth to date, both the Air Force and Navy will have a major selling job yet to do when they meet the congressional appropriations hearing rooms. The recent budgetary recommendations of the National Association of Manufacturers contain the disquieting proposal that national defense expenditures be reduced from the current year's level in keeping with a "peacetime" economy.

Of perhaps more concern to the industry is the NAM recommendation that the practice of granting large contract authorizations be discontinued. If followed, this suggestion would of hot work what little long-range procurement planning the Air Force presently can do.

DOMESTIC

P. W. Lickfield, Conductor Three and Rehebor Co. board chairman, was awarded 1947 public relations award for greatest contribution through public relations to the national welfare. Primarily responsible was Lickfield's "first story ever told" radio program.

Ninety-fourth fighter squadron at NASD Shafter Star jet fighters arrived at Ladd Field, Fairbanks, Alaska for its month-long weather training. Fighters were recently stationed at Lockheed-Aircraft Corp. for the —55 August only at the Arctic region.

Pittsburgh Viscose created Interdepartmental Commission for Scientific Research and Development. Chairman R. S. Stetson, committee chairman, member includes Departments of Army, Navy, Air Force, Commerce, Agriculture, Interior, Federal Security Agency, Veterans Administration, NACA and Smithsonian Institute.

Secretary Stennington revealed Air Force has abandoned "West Point at Air" proposal and hopes to obtain it as an outlet for the military and naval cadets. Stennington will move from National Guard, college program and enlisted personnel.

FINANCIAL

Beach Aircraft Corp. reports net loss of \$1,816,449 for the fiscal year ended Sept. 30 after inclusion of \$4,995,255 tax carryback credits. Total sales for the year were \$26,211,411. Bechler was reported at \$22,608,000.

Reynolds Metals has announced a dividend of 25 cents per share common payable January 26 to holders of record January 5. Previous dividend was 25 cents in December, 1946.

Kawneer Airplane Corp. reports net loss of \$54,113 for its month ended June 30 on sales of \$1,860,522 compared with \$59,212 loss in \$1,504,120 sales same period previous year.

FOREIGN

Lines Argentina Venezolana (LAV) has acquired a contract with Chicago and Southern Airlines to link services at Havana, Cuba. Under terms of the agreement, C&S will operate passenger air service to LAV for flight to Venezuela.

Government of India has approved the establishment of "Air India International, Ltd." to link India with Europe by an Indian Government-owned airline. 49 percent of the initial \$3 million capitalization with option to buy 2 percent more to assure control at any

time. The Bombay-London route will use Lockheed Constellation as a twice-a-week schedule beginning in May. **British Airways** reports completed 8,615 passenger flights over 4,372,460 plane miles during September, 1947. Over 17,015 miles miles, BKA carried 69,450 passengers 15,153,000 passenger miles and delivered 246,189 lb of mail and 438,693 lb of freight.

LETTERS

Gossip & Predictions

To the Editor:

Last evening I read your editorial in which there was at least an implication that Mr. Booden and Mr. Wright had been so glib about their prediction for private flying.

How you forget that all of our aviation activities were predicated upon the accomplishment of things which we believed necessary before private flying could appeal to many people!

If you have a copy of Mr. Williams and my report to Booden, "Private Outlook for Private Flying," you will find on page 195 10,194 in comments of "greater market for private flying" and I called for 10,000 new planes in the last year following the war and 16,000 in the second year.

Also, if you will look at "Our Plan for Private Flying" by Ted in the April 1946 issue of Flying you will note that he predicted a leveling off at 75,000 personal planes for present types.

I think you will agree that we have to be ahead present flying with little change.

John Greene

Mutual Firms Overlooked

To the Editor:

Your article of Oct. 6, entitled "Lemon Mike Insurance Companies Leave Personal Plans Market," mentioned correctly the mutual insurance companies who are actively participating in aviation activity.

It is true that there are three more stock insurance companies going, appearing in the aviation insurance business. It is also true that a number of insurance companies around the aviation industry filed at the close of the war and that many of them have decided to capital or abandon their aviation insurance writing. However, the mutual companies around the aviation insurance filed in 1945 and have been building a considerable insurance volume in the Southwest. They do not have any activities of withdrawing from the field.

Their presence is an important economic factor because the insured portion of their premium is assumed to policyholders in the form of "dividends." These savings are extremely important to the aviation policyholder in this era of high rates, which result from the high loss level at this time.

The plan of operation of the mutual companies in the aviation insurance business is unique. It was drafted upon in 1941 after a careful survey was made of the oper-

ating methods of the three groups and of the methods of other independent companies. The mutual companies operate independently under no sales and across a common. This is comparable to the operation of all companies in the automobile field, and the mutual companies believe it is the best method for long range operation. They consider the group method as soundly and equitably.

The unique feature of mutual fire companies is their participation in an official rating bureau with an in mind for other types of insurance. The Transports Insurance Rating Bureau provides its service rate service to its members and subscribers in the field of United States and American insurance. Thus a no other can provide information for the rating of aviation insurance. The mutual group the method for companies the technical advantages in the computation of rates, but it does not happen that by an outside group expect task when sales and service are concerned.

In general, we wish to reemphasize you the accuracy of the article matter in this and are grateful are concerned.

W. H. Rouse, Secretary
Transports Insurance Rating Bureau
Chicago, Ill.

Mandatory Stall Warnings

To the Editor:

Your editorial Nov. 10 suggesting or possibly implying that there ought to be a regulation requiring all aircraft to have stall warning indicated is very interesting. I agree with you that the stall light indicator is certainly a big aid in safe operation of aircraft. I am delighted that such an improvement is available on the market, and I hope that aircraft owners and manufacturers will begin to use them in this country very soon. However, as far as safety in the near future, I don't agree that stall warning indicators should be mandatory on aircraft as recommended by the CAA non-mandatory flying advisory committee. I am afraid that it is possible that this group is leading to clearly with the CAA that possibly they are not recommending that industry use in all of these recommendations. It is true that many aircraft accidents are caused by stalls, and I believe that in the interest of safety the overall consideration will come centered in equipping their aircraft with an indicator in the advantages of the instrument because better known. Isn't it in complete fact that the stall warning would be considerably safe of the occupants of all sales were made to wear safety belts? Possibly if this were done immediately of themselves, then safety could be saved. But is anyone actually making a fight to have all automobiles equipped with safety belts? I believe that many people would feel a law requiring who safety belts would be carrying "glances" practice a little too far.

I repeat again that the stall warning indicator seems like an overhead in the air, but let's not make it mandatory. Is the Washington job sitting on your seat? God forbid!

REYNOLD HARRISON, President
Harrison Flying Service
Grafton, N.C.



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Wrenching of Socket Screws originated with "Unbrako" in 1924.

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Vol. 40, No. 1

**AVIATION
WEEK**

Jan. 5, 1948

Aviation Industry Eyes Congress For Stable Policy and More Funds

Action on Air Policy Board report unlikely during election year rush to adjourn; procurement progress expected.

The aviation industry looks hopefully but skeptically to the second session of the 80th Congress now being convened in Washington, a session promising vigorous growth and financial stability.

Interest is focused on the joint Congressional Air Policy Board, whose four subcommittees on aviation, aviation, manufacturing, transportation, and procurement operations are tackling major problems and issues in the aviation field. Only two issues—the highly controversial aviation and defense environment—already thoroughly floundered out at Congressional hearings have been excluded from the Board's agenda. With the benefit of the findings of the President's Air Policy Commission, the group, whose chairman is Sen. Owen Brewster (R., Me.) and vice chairman, Rep. Carl Hayden (R., Calif.), will launch public hearings in the near future.

***Much Deadline** — Although the Board's final report on aviation budgets is expected to offer a blueprint for future

air power, commercial and military, its chances for implementation during this session seem dim. An early adjournment of Congress this election year, probably by July 1, can be counted on. This would leave the standing committee of Congress only four months in which to follow through on the Board's recommendations with legislation, hearings, and action. The standing committees—rather than the policy board, which has only power to recommend—will make the decisive move in allowing the aviation industry.

Approximately one-third of the House and Senate will be well along with groundwork on the 1949 fiscal year aviation budgets for the Air Force, Naval Aviation, Civil Aeronautics Administration, Civil Aeronautics Board, and the National Advisory Committee for Aeronautics—long before the Board has announced its proposals on aviation expenditures. Appropriation bills, military's final report on aviation budgets will primarily be the result of weighing

these against other demands for cuts from the federal expenditures pie. Although the President's Air Policy Commission, and now the joint Congressional Board, have worked support for increased military aviation expenditures, the political pressure for other expenditures of the post-war type aviation program is strong. With the Republican Congress striving to lower the ceiling on federal expenditures and cuts in post-war aviation unlikely is a pessimistic election year, the outlook for greatly increased aviation budgets is not bright.

Several aviation committees of the House and Senate will not meet on the policy board before passing for completion of Congressional action on comprehensive procurement legislation.

***Procurement Progress**—Two major procurement measures have been passed by the House and approved by the Senate Armed Services Committee.

The Omnibus Armed Services Procurement bill, modifying and modernizing regulations and increasing restrictions on negotiated bids opposed to competitive bids contracting. The bill involving the Veterans' Administration's program requiring that 10 percent of Naval aircraft be manufactured in government-owned plants and placing a 12 percent plant limitation on military and naval aircraft contracts. Both measures are scheduled for Senate action early in the session.

Armed services transactions are also



JET FLYING WING IN FLIGHT

Most recent photo of Northrop YB-49, new jet version of the famed Flying Wing bomber, shows this, since then, in flight at 22,000 ft. over Mojave Desert near Shafter Air Base, Calif. Test flights on the YB-49 got under way immediately after its Oct. 31, 1947, first takeoff and have continued steadily ever

since. Trouble-free jet engines after ground crew contact in follow-up flight, action of 20-15 propeller-driven turbines. Second YB-49 has been completed and is scheduled to fly away from Northrop's Hawthorne, Calif., plant early in January of this year.



TESTS ARE IMPROVED—Before and after versions of the Navy's Lockheed P-3V long-range patrol bomber are shown above. The P-3V-1 (left) set a world-long distance record of 11,236 miles last



year from Perth, Australia, to Colombia, Ohio. Latest Navy order is for the P-3V-2 featuring new major changes. Extended range, visible cockpit canopy, radar-parked nose and modified dorsal gun

Navy Increases Neptune Order

New version of Lockheed patrol bomber has heavier armament, new props and engines.

Restarting its production order of Lockheed Neptunes, the Navy has increased a further and more heavily armed version of its future patrol bomber. The new order for 19 P-3V-2s increases the Navy's total order to 190 of the planes, the original of which currently holds the world's distance record with a 11,236 mile nonstop flight from Perth, Australia, to Colombia, Ohio.

New features of the P-3V-2 include:

- **Better engines**—New series of Wright diesel engine engines increase takeoff power by 600 hp, giving a faster rate of climb.
- **New propellers**—Standard three-bladed propellers replaced the four-bladed narrow chord prop. Electronic driving replaced electrical system on the blades.
- **Deicing**—Combustion type heat-exchange thermal deicing for wing and canopy.
- **Radar**—New search radar and a variety of tactical radar equipment are housed in the elongated nose.
- **Armament**—Six 30-cal. machine guns in the nose finned by the pilot replaced the two 30-cal. flexible machine guns on the P-3V-1. Two 70-mm. cannons replace two 105's in the dorsal turret. Turret has also been streamlined. Tail armament has been changed to two 38 mm. cannons. P-3V-2 also carries 16 fuel air rockets, two napalm or a dozen depth charges.
- **Radar**—Kingston solid state replaces the board-mounted solid state board-mounted solid state and houses search radar and a variety of tactical radar as well as navaid armament. New nose adds 24 in. to length of plane.

Production on the latest Neptune contract is expected to continue until June 30, 1970. Navy now has three Neptune squadrons in active service.

Earlier model of the P-3V was 10-day patrol bomber in a storehouse, not yet in progress of flight. In addition to the new rolling the Neptune on a single on gaw, built flew the bomber at 335 mph, and pulled out of a dive at 2.9 G according to the Navy requirements of 340 mph and 2.67 G. It also flew at 45 mph with good control.

Loaded to its designed operating weight of 45,000 lb, dive tests were run with a 45 degree nose up to exceed maximum climbable speed with nose up down angle. Pull out at 2.9 G was made at minimum operating of 38,000 lb.

Extreme stalls with nearly full power on, violent nose and landing at 18,000 lb. g-loads and landings with both engines dead completed the tests.

Aluminum Shortage Looms for Industry

The domestic aluminum industry this year, hampered by a shortage of electric power, will fall short of supplying the nation's needs by a maximum of 20 percent.

The shortage, some 320 million pounds, is figured only from present demand. Any increase in use of the metal, such as a conventional auto, an atomic production schedule would add up that much more to the debt side of the order books.

Power shortages—Scarcity of electric power, not plant capacity or use, adds much to the reason for the predicted shortage. All three of the major producers of the light metal in this country—Alcoa, Reynolds and Kaiser—now year will either be cut off from some of their potential power sources or will be unable to regain those dropped last summer when several of the larger plants shut down in face of an aluminum surplus.

Reynolds is the worst hit. Its Long

view (Wash) plant, which closed down last spring and gave up a power contract with Bonneville Power Dam, has not been able to sign the same deal. That means 60 million pounds of pig aluminum will not be produced.

The company's Lorain Falls (Ala.) plant has two of its "pot lines" down and can't obtain the power contract. That means 40 million pounds of aluminum.

• **Sink Ponds**—In an effort to up its metal output, Reynolds has been negotiating with West Alcoa, Alabama, to lease 30 pot units production two side pot lines of the Pratt Mill (Ark.) plant, where the company already has two lines in operation. Like again power comes into the picture. Alcoa's Power and Light Co., which supplies the area, has all the equipment on hand. In order to help Reynolds, the strike will have to take place away from the ponds. That is another 70 million pounds of metal not being produced.

Kaiser's Spokane (Wash.) plant could produce another 35 million pounds of metal next year if it could get the power from Bonneville. So far an extra contract has shown up.

Alcoa, best off of the three, gets partly because it has three power plants of its own in the TVA (Ohio) and has a contract that provides enough power to cover maximum needs in its plants in the future, will have trouble on the way.

One of the company's pot lines at its Vancouver (Wash.) plant is running on power contracted for only up to April. After that time, the company tries, Bonneville will not agree that can't. There goes another 30 million pounds of light metal.

• **Light Supply**—Just to make it worse, the supply of light (150 million pounds) coming from smelting plants in the West, where it was being shipped, will all dry up in May. Scarcity of the light has been dropping at the rate of 150 million pounds that year, is expected to be better to find next year.

XB-47 Dives at 720 Mph.

Regulation of a 720 mph indicated diving speed for the new supersonic Air Force Boeing XB-47 bomber proves the new craft not only the fastest bomber but one of the fastest airplanes ever built, with a top indicated speed in level flight approaching 655 mph, just over the accepted sound record for airplanes. The control system, first flight by Boeing, test pilot Robert Johnson and Scott O'Neil took the plane, 175,000-lb bomber to 16,500 ft in 40 seconds to Moses Lake Air Force field in central Washington. A second test flight took the giant craft up to 18,000 ft in a 60-mph dive during which stall and control characteristics were tested satisfactorily. A speed of 490 mph was achieved during the second flight. Both pilots pronounce the stability and control qualities of the airplane beyond their expectations. Cabin temperature control through heating and refrigerating equipment (for high-speed flight) performed perfectly.

Air Force has approved the use of the Moses Lake field, which is currently on a stand-by status, for a period of 30 days for plane 1 flight tests by Boeing personnel. Boeing is hopeful that the required 57 hours of plane 1 tests can be completed in the time allotted but needs more time on extension of the 30-day period. If the Air Force does not grant the extension, the XB-47 will be flown to the Air Force's Moses Lake Base, Calif.

Engine Reports—Avco Lycoming ship engines at 11 percent for October, totaling \$20,000,000 in August \$26,000,000 for September. Of this total \$23,000,000 went to U.S. military customers, comprising 78 percent of the total. A total of 873 military engines and 695 commercial engines was delivered during the month. Engine backlog rose up from 25,634 to 36,774 for new military customers. Of these total military orders, 10,000 were for personal aircraft engines comprised about 98 percent.

Employment was up slightly in October over the preceding month but still below the January peak. Aircraft plant employees totaled 145,318 and 53,544 employees were reported in aircraft engine plants, a total industry employment of 178,792.

Alaska Airlines Denies Violating Regulations

Alaska Airlines, claiming a CAB show cause order (Aviation Week, Dec. 10) has denied a violation provisions of the Civil Aeronautics Act in its operations between Alaska and the Pacific Northwest.

The company said its passenger-carrying service between the territory and continental U.S. have complied in part of contract, non-stop carrier flights and in part of some scheduled and irregular operations carrier flights under Section 192.2 of the Economic Regulations. Despite this denial, the carrier agreed to cease and desist from engaging in common carrier air transportation of persons between Alaska, the territory and continental U.S. except for charter and other special services conducted in conformity with its certificate for intra-Alaska operations.

U. S. War Plane Production Rises

Aircraft Industries Association estimates 1800 military aircraft made during 1947.

Military aircraft production during 1947 increased by thirteen and one-half percent over 1946, according to an industry summary prepared by the Aircraft Industries Association. Total of about 1,800 military planes was delivered during the year. Increase was represented largely by losses type aircraft. Airframe work, estimated at approximately the same in 1946 during 1946, 1,510 military aircraft were delivered. Non-aerodynamic production for the year included some 150 transport and about 15,000 personnel aircraft. Transport production, including twin-engine, tri-engine types, dropped sharply from the 407 delivered the previous year, reflecting the cancellation of air transport orders awarded during the year.

Personal aircraft production was approximately one-half the previous year, although increase was slightly more than one-half due to the increasing production of bi-place types now in production.

• **Financial Reports**—Intelligence financial reports issued by major aircraft and engine companies indicate that the operating loss of the industry will approach \$130,000,000 as compared to the \$11,000,000 loss during 1946. This operating loss will be reduced to a net loss of about \$121,000,000 by the application of tax carrybacks and the benefits of various reserves and other contingencies funds.

Latest production figures from the Department of Commerce report decrease of \$77,233,400 worth of aircraft

parts and products during October, 1947. Of this total, \$78,106,000 was in complete aircraft and parts. Ship seven percent of this total, \$49,000,000 was in fulfillment of military contracts. These shipments represent an increase of 21 percent over September.

Air Force and Navy, American received 250 aircraft during October, a decrease of 25 percent from September. Military backlog for entering month probably increased from \$24,600,000 to \$24,000,000. Non-military backlog decreased from \$201,290,590 to \$171,044,757 all due to deliveries and cancellations of aircraft of more than 3,000 lb. surface weight.



LATEST GRUMMAN BEARCAT JOINS FLEET

Fastest light ship of Grumman F-108, known as Bearcat, shows first delivery 20 mm cannon mounted in nose in wings. New model also features revised engine, new engine equipment and reduced power plant 500 mph class, the new F-108 is only the latest, fastest, fastest propeller-driven aircraft fighter in the world. Navy dependence on Bearcat is evident from recent additional order for 45 following past VJ order for 750. (Navy photo)

The industrial injury frequency rate during July, August and September decreased in aircraft production but increased in aircraft parts production, according to a survey of the Bureau of Labor Statistics. On the basis of the first three quarters, it looks like the 1947 rate will show an improvement over 1946 in both industries.

Through September, the average number of disabling work injuries per million employees hours worked was 4.6 for aircraft and 9.1 for aircraft parts. Respective figures for all of 1946 were 5.3 and 13.7.

During July, August and September, the injury rate for each month in aircraft was 5.6, 4.7 and 4.6; for fixed quarter average was 5 in aircraft parts, the frequency during the same months was 6.7, 10.0 and 10.6, for an average of 7.

In both industries, the injury frequency rates are far below the average for all manufacturing industries, which was 18.1 for 1946 and above 15 in each of the first three quarters of 1947.

IATA's Clearing House

Records October Drop

Although international air traffic decreased in October by the International Air Transport Association clearing house (total of \$5,900,000, a figure \$2,400,000 under September's record total), total clearings by the institution during the quarter ending in October were \$11,400,000, against \$12,100,000 for the three months preceding.

IATA reports through the London branch of the clearing house that the decrease in the October total, representing airline traffic transactions between the 24 clearing house members, was due to changes in accounting procedure, seasonal traffic variations, and travel restrictions in the United Kingdom.

AVIATION CALENDAR

- Jan. 2-8. MIDWEST AIRWAYS Board of Directors, Executive Division, Washington D. C.
- Jan. 10-12. Society of Automotive Engineers annual meeting, New-Orleans, La.
- Jan. 20-22. DSB annual meeting, Institute of the Aeronautical Sciences, Santa Anita, New York.
- Jan. 23-25. Aeronautics Institute of Technology, Chicago.
- Jan. 25. American Road Builders Association, American Road Builders Convention, New York.
- Feb. 15-17. 10th annual Flight Engineers and Flight Crew Conference, American Flight Crew Club, West Coast, Los Angeles.
- Feb. 20. ICAO personnel training Division, Montreal.
- April 1-10. American Institute of Aeronautics Engineers, New Orleans.

INDUSTRY OBSERVER

► Air Transport Association's representative (Vice President Milton Arnold) on the President's special Air Safety Board will file a minority report on the Board's activities. Arnold pulled a last minute surprise without at the Board's final meeting after agreement had been reached on virtually all points except airline personnel problems. Majority report has been approved by Chairman James M. Lusk, J. E. Wood, Eastern Airlines pilot representing ALFA, CAA Administrator T. E. Wright and J. W. Crowley, senior advisor director at NACA substituting for NACA Chairman, Dr. Jerome C. Hunsaker.

► Civil Aeronautics Board has approved Pan American Airways request to withhold fees the public release documents filed last month in Pan Am's Latin American suit and rate case. Pan Am claims the documents contain sensitive information affecting national defense. Objectives would be that would shed any light on the PAA documents that were once such a hot potato in the Senate War Investigating Committee.

► New accounting device, the largest of its kind in the world, now being designed and built by the McMillan-Turney Corporation for the Office of Naval Research, will subject pilots and instruments to high accelerations, similar to those experienced in modern military aircraft in sharp turns or pulling out of dives. Acceleration will coincide, measured at one end of a 15-foot horizontal arm, which will be directly attached to the shaft of a 4,000-horsepower electric motor. Automatic electronic control system will cause the motor to follow closely any predetermined speed program. Both the electric drive and the electronic control system are being designed and built by the General Electric Company.

This device will be capable of speed up and slowing down at a rate of 10 times the rate of gravity. Peak acceleration of 40 times that of gravity will be obtainable.

► Northwest Airlines' operational challenges of the Martin 202 has indicated about 100 minor modifications needed to suit the airline's needs. Only minor modifications will hinge on the automatic propeller feathering device now required to meet the CAA's transport category regulations with a variable pitch. Northwest has not yet determined what it will do about this problem.

► Major airline assets of the 202, according to Northwest are improved passenger comfort (locking more footboards, better visibility and lower aisle level) built on the ground handling and better block to block speed.

► British European Airways will order 10 to 15 Avrocar Ambassador transports as replacements for the Vickers Viking on its continental routes. Ambassadors are expected to go into service in 1951. BEA based these orders on the Vickers Viking.

► Northrop XH-40 has completed phase I (suspense) test flights and has been taken over to Air Force personnel at Muroc Air Base, Calif., for phase II tests. Chief AAF pilot will be Major R. Caviness, Wright Field test captain, who has already flown the airplane. A series of more Air Force flight tests are available for the tests, having been trained for the purpose on the N-40 flying wing trainer stationed at Muroc over the past two years.

► Solar Aircraft Co. and General Electric are conducting Navy instruction classes in atomic batteries and helium welding for aircraft.

► Northrop XH-15 flying wing bombers, grounded at Muroc Air Base, Calif., for several months, are due to take the air again this week with new engine rotation. Hazardous standard free-fallable profile propellers. Success of these test flights will be followed by production installation of these propellers on the remaining 11 airplanes of the X-15 contract.

► Completion of tests on a full scale Custer "glider wing" with 75 hp. engine the Custer Aeronautical Laboratory, Cambridge, Md., indicates satisfactory performance for the device in the opinion of Prof. Louis H. Brock, aerodynamicist at Catholic University. While previous work tunnel tests at Wright Field on a simplified scale model had provided clear indication of high lift at extremely forward angles, enterprises to full scale proved unexpected due to a complete lack of knowledge of scale effects. These recent full scale tests show direct lift at zero forward speeds is now satisfactory. First flight tests of a new Custer "glider wing" airplane now scheduled early in April are planned to demonstrate the direct lift characteristics without forward velocity.

American Cuts Order For Convair-Liners

Original contract for 100 reduced by 25, bringing Convair backlog down.

Consolidated Value Aircraft Corp. last week announced a 25-plane cancellation American Airlines' original order for 100 Convair-Liners.

The latest announcement, "unusual able production delays" postponing until scheduled deliveries to American Airlines, have resulted in American Airlines Convair agreeing to renege their original contract, according to William A. Bice, Convair vice-president.

"American Airlines cancelled to order 25 of 100 planes ordered to make them available to other customers at a time when a stabilized production line will assure a prompt shipment."

The American cancellation reduces from 175 to 151 the number of Convair-Liners listed for production under "firm" orders from customers who have made at least 25 percent down payment.

When American placed its original contract it agreed to payment of \$175,150 per airplane, less engines and other items. Later, Western Air Lines advanced 20, subsequently cut to 10, at a price of \$158,000 including engines and other accessories. A later price boost brought the selling price of the Convair-Liner to \$166,000 (discounted) and \$178,000 (gross) less engine and other items. The current domestic price, fully equipped with standard and radio, is \$183,000.

"Order or Option"—Although Convair has consistently listed 100 planes for American in its liner backlog, option for more time has been that the airline's order actually was firm for the last 50 airplanes, with the remaining 50 as options. Presumably, American will hit a firm order for 50, but with the option cut down to 25 planes.

Convair's announcement of the American order cutoff contrasts an ongoing planning procedure to industry observers (planning procedure to industry observers) of the best competitive sale in the two-engine transport field, particularly the clause "when a stabilized production line will assure a prompt shipment."

Convair officials on several occasions have indicated that the company will have to sell at least 300 Liners to make a profit on the investment in the plane. With the reduction of the American

order, the manufacturer now is short at the half way mark on sales. The present Convair aircraft seems to be in conflict, also, with the contract of Floyd B. Collins, when he took over as board chairman in November, that "further substantial losses during 1948

seem almost a certainty."

The heavy outflow of liner inventories (\$14,000,000) at the close of the 1947 fiscal year may have made it possible for Convair now to discontinue its "jump" on the delivery of some of the 151 planes on order.

BRIEFING PRODUCTION NEWS

► Altkonisch Manufacturing Co. has received a new order from Consolidated Value to equip Convair-Liners with pressure control instruments. Company already is furnishing sales supervisors, turbine calibrators and test cells for calibration, calibrator and other equipment for the Liner. Altkonisch equipment now in service on 12 aircraft and 20 engine aircraft.

► Beech Aircraft Corp. expects increased orders next spring for its two-engine model 18 transport. President Walter H. Beech has reported to stockholders. Company anticipates a profit in 1948. Production of the Bonanza has been cut back due to engine sales drop. Until completion of tests, no orders are being solicited for the Twin-Quad four-engine transport.

► Texas Engineering and Manufacturing Co. has further diversified its activities by turning its production on a sizable quantity of subassemblies for truck bodies for transportation of soft drink bottles. Contract with International Co., Fort Worth. As far as its aviation enterprise are concerned, TEMCO has announced it will continue its lightweight manufacturing to the two-place Swift 125, and will attempt to enter the four-place field.

► Fleet Manufacturing & Aircraft Co., Fort Erie, Ont., has started work on a \$5,000,000 contract to produce aluminum skins for Twin Coach Co., Kent, Ohio.

► Finestone Aircraft Co. has licensed Finestone Aircraft Co., Pasadena, Calif., to manufacture, distribute and service Finesse-control wheels and brakes. Finestone will take over full-scale orders of Finestone and continue supplying and servicing Finestone customers.

► Eds Corp.'s commercial fleet division reports a loss for the first nine months of 1947 of \$67,935, although sales of fleets during the period totaled \$13. sets as against 151 sets in the last year period. Deficit is attributed to abnormally high development, tooling and engineering costs.

► MacDonald Beech Aircraft Ltd., Winnipeg, Canada, is the Canadian licensee of Eds Corp., a manufacturing Eds-designed fleet installed on the DeHavilland Dove.

► Victoria Modification Center, Victoria, Texas, is negotiating contracts for modifications of 10 C-46s, two C-47s, and one C-47, C-54 and T-67-5.

► Glenn L. Martin Co. is now designing its plastic and chemical divisions as newly diversified division to avoid any interdependence arising from one of the world plastics. The company's Zanesville, Ohio, plant produces a polyvinyl resin now central to be fabricated by other manufacturers.

► Johns-Manville Corp. has purchased Van Clorox Bros., Inc., Chicago manufacturer of industrial and domestic products, and it will be operated by parent personnel in a wholly-owned 100 subsidiary.

► Krommsteel Inc., Littleton, Pa., has opened custom ductwork offices at 6 West Broadway, New York City. Office will maintain engineering service, and stock standard ducts and blanks for prompt delivery to plants in the area.

Investigation of Ideal Flight Criteria Aids in Assessment of Test Results

Vital question of whether airplane performance is satisfactory now measured against certain requirements rather than being left to pilot's "feel."

By ROBERT McLEAREN

The answer to whether an airplane handles "okay" is the way or whether its flying qualities are "unsatisfactory," being a matter of an individual pilot's reaction, can now be based on a definite set of requirements formulated as a result of extensive testing by the National Advisory Committee for Aeronautics.

The answer to that apparently simple question has been one of the most varied yet complex missions in aviation for as it helps thousands of boys and girls learn of duties involved in the creation of a new airplane.

Formerly the aircraft industry relied on the skilled test pilot whose experience qualified him to "judge" a new airplane in relation to those he had flown previously. While such comments as "the handles fine" and "feels heavy on the controls" by a test pilot led to either an approval or disapproval of a new design in the "twenties, as the science of aeronautics expanded such cryptic log book entries grew progressively less useful to the engineer.

• **Detail.** Needed—Increasing pressure was brought to bear on test pilots during the "thirties" for more detailed interpretation of a test flight as terms of quantitative information. As a result test pilots became a highly sensitive profession with greater stress laid on the engineering knowledge and analysis of stability, and less emphasis on their flying ability. By the time Thurston test pilots were required to be inventing evaluators and chief flight engineers as Edward T. Allen (Boeing), Robert Hall (Cessna), Marshall Hoelle (Lockheed) and H. Lloyd Child (Curtis) established themselves as valuable technical assets to their companies in engineering test pilots.

However, it had become increasingly obvious that some system of criteria was badly needed to provide the designer with tangible objectives for his selection of qualities in a new airplane design. An investigation in that field got under way by individual companies (Edward T. Allen was chosen to deliver the North Western Engineers Lecture on

his work in this field, the armed services and the Government, it was soon clearly evident that here was no simple job of arbitrarily requiring a "good stall," "good spin recovery," or "good stability," particularly when it had not been shown that good stability, for example, was actually an essential characteristic of a safe airplane.

To answer these questions, NACA began an aircraft research program in 1939 to determine the qualities of an airplane actually required for satisfactory and safe handling in the air. The program continued through the war with all types of combat aircraft and is presently being devoted largely to multi-engine commercial transport aircraft, among others. This research, involving thousands of hours of flight and wind tunnel tests of 167 different airplane designs, has established realistic requirements for satisfactory flying qualities.

LONGITUDINAL STABILITY AND CONTROL

• **Stick-Free Damping.**—When the plane flies steady and level, the stick is moved suddenly and released. The resultant pitching of the airplane and movement of the elevator must completely disappear after one cycle. This requirement means that the airplane will be stable in rough air and that gusts will not aggravate the pitching movement occurring loss of control. This entails little or no short period involving a variation of the angle of attack at a substantially constant altitude. Long period (phugoid) oscillations have been substantially eliminated in a requirement for safe handling qualities at an operation was reached between such oscillations and a pilot's ability to control the airplane. Short period damping depends on the elevator hinge moment coefficients, the mass balance and the amount of inertia of the control system.

• **Elevator Control System.**—With the elevator held in a given position, the airplane should maintain the attitude assumed with engine idling, flap up or down, at all speeds above the stall, with

engines delivering cruising power and flaps and gear down (at the landing approach) at all speeds above the stall, and with engines delivering full power, flaps up and speeds above 120 percent of the stall. The focus on the elevator control should be such that "pull" forces are required at all speeds below the trim speed and "push" forces at all speeds above the trim speed. The elevator control force should always be enough to return it to its trim position. The elevator must be capable of maintaining the airplane in level flight at the maximum and minimum speeds required of the airplane.

To obtain these qualities, the elevator should be designed to obtain the allowable load factor of the airplane as well as the maximum lift coefficient by use of the elevator alone. For fighter aircraft, the elevator should be designed so that at least four inches of normal movement of the stick changes the lift coefficient from 0.2 to the maximum lift coefficient of the wing. Control forces on the elevator in steady banking flight should not vary more than 50 lb. For more G pulled on transport and heavy bombers not less than 5 lb. per G on fighter types and in all types it should require at least 10 lb. of stick force to attain the allowable load factor. This latter requirement prevents accidental overloading of structure.

• **Elevator in Landing and Takeoff.**—The elevator control should be powerful enough to hold the airplane off the ground until the maximum speed of the airplane is reached. The force should not exceed 90 lb. on control wheel and 15 lb. on control sticks. The elevator should be capable of holding the airplane level after one-half the takeoff speed has been reached.

• **Longitudinal Trim.**—After the airplane has been trimmed in level flight loads are stick forces, the elevator must be capable of trimming the airplane without forces greater than 90 lb. (15 lb. for stick) regardless of the elevator in power or free settings. Trim tabs must be capable of reducing the stick force to zero under cruising conditions at any speed under high speed and 180 per cent of the stalling speed in the landing configuration at air speed between 120 and 140 percent of the landing speed, and they must maintain a trim setting for an indefinite period of time.

LATERAL STABILITY AND CONTROL

• **Stick Free Damping.**—When all controls are released in flight, lateral oscillations of the airplane should always damp to one-half amplitude within two complete cycles. When the aircraft is rolled or yawed and released and then allowed to move and return to

(Continued on page 12)

UNQUESTIONABLE Dependability

with Timken Bearings

Shown above is the new four-wheel main landing gear being installed on B-36 production models at the Generalized Vultee Aircraft Corporation's plant in Fort Worth, Texas.

Completely equipped with Timken Tapered Roller Bearings, the eight 36-inch wheels distribute the bomber's 276,000 pounds over a greater area than the two 14-inch wheels on the experimental model, enabling the new design to sustain a greater number of airfield for their heaviest flights of 10,000 miles with 10,000 pounds of bombs.

Aircraft engineers have long realized the inherent ability of Timken Bearings to reduce friction, minimize maintenance, give longer service and withstand all initial, thrust and combined loads under all takeoff, flight and landing conditions.

The Timken Roller Bearing Aircraft Series was designed specifically to solve aircraft, engine and propeller problems. It may solve yours. Write our engineers today. In the meantime, look for the trade-mark "TIMKEN" on every bearing you use. The Timken Roller Bearing Company, Canton, O., Ohio.



NOT A BALL — NOT A ROLLER — THE TIMKEN TAPERED ROLLER — BEARING TAKES RADIAL — AND THRUST — LOADS IN ANY COMBINATION



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the new and better aviation engine oil . . .

Here's a new and different engine oil — an oil that helps fight piston freeze during — for more hours between overhauls — with less oil for empty space!

For Standard Aviation Engine Oil is not like most engine oils — simply a straight mineral oil without extracted from the base base stocks. Standard's new oil contains special patented additives.

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This makes for free valve and ring action — smooth, powerful piston strokes — free flow of oil through un-clogged lines and filters. Your engine runs more smoothly, uses less oil, needs fewer repairs.

When more, this new oil means longer life — and less a

STANDARD OIL COMPANY (INDIANA)

high viscosity under and a low pour point, for quick starting and easy circulation in cold weather.

See my Standard Aviation Engine Oil! Try it today! (See ad on page 24 for full details.)

**Standard Skyway Service—
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Standard Aviation Gasolines
Standard Aviation Engine Oils
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Quaker State Auto Engine Oils
Atlas Aircraft Tires, Batteries and Accessories

Complex Problems Solved in Dart Kit

Production aircraft broken down into 22 items designed for ease of packaging, shipping and amateur assembly.

Dart Aircraft Corp.'s plans for making this 1946 plane available to the general public in kit form (*Aviation Week*, Nov. 17) has involved solution of complicated engineering problems. The possession of prefabricated parts for these kits had to be backed from the standpoint the company was using a current production plane and dividing it into components which would lend themselves easily to amateur construction. The necessity for manufacturing all major sections, and those consisting of numerous sheets, to factory specifications, called for a comprehensive analysis of the entire structure in order to prescribe a definite division between prefabricated parts and "knocked-down" assemblies, furnishing a variety of construction problems to purchase and at the same time ensuring adequate structural safety and retention of familiar lines in the finished aircraft.

Also entering into the picture was the problem of kit dimensions and means of packaging and shipping. Since various transportation facilities would be used, it was evident that a standardized packing method would not be satisfactory because of the unnecessary expense entailed. The company decided to offer alternate packaging for saving costs on its points not requiring crates.

• **Spars Included**—Kits in stock up at the factory, contain 22 items including prefabricated sections and parts, rails, fittings, and glue. Contents of the basic kit list:

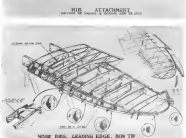
• **Welded Sheetmetal**—Control stick assembly, elevator control assembly, fuel tank, fuel tank assembly, engine mount, nose rail, chassis and fittings for cowling, fuselage, wing assembly, fuel tanks (2), battery frame, landing gear assembly, tail wheel spring, tail assembly (tailwheel, elevator, fin, and rudder).

• **Wing Group**—Fuselage wing part, section fabricated and balanced, wing fittings and wood, and pivot tube and fittings.

Tools and equipment needed by the builder are readily obtained at most well equipped work shops, a large work table or two (4 ft. saw horse levelled and nailed to floor), large extension clamps, clippers, carpenter's level, screwdriver and several small tools (screwdriver, pliers, and screw driver), safety wire and either pins.

Instructions sent with the kits are extremely neat and describe in detail the sequence of construction in logical steps. Some is laid on the necessity of

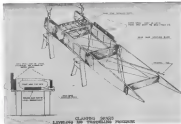
Photo top shows completed aircraft, as finished new and two sample construction drawings.



structural loading and member design of fit and tension of all joints prior to final assembly, together with overall supervision of the whole project by an A & E architect who will sign for work after final inspection by a CMA inspector.

Working drawings contain details of all complicated joints and fittings, describing usually the proper steps leading to correct positioning and fastening, truing and locking (where necessary). Complete identification—Purlin cut points are numbered and/or marked at appropriate points to facilitate identification of joints and sub-assemblies. Markings include datum points, leveling and squaring references, and positions requiring particular attention during construction.

The whole program is laid out so that the builder will have, at all times, the maximum possible work space available to him at every given stage of construction, ensuring maximum safety of the finished product. No joints or parts have been made "blind" to the designer's view.



junctions being regarded as a materiality reduced.

Power Plants—A variety of power plant installations are approved, with

power ranging from 90 to 345 hp. Such engines as the Lanchester 90, Kestrel 90, or Warner 90 may be used with the basic kit without change.

Research Review (continued from page 18)

deally, they should return to their neutral position and damp any oscillations within one cycle.

•Aileron Control System.—With the rudder held fixed and the stick at one full wheel deflection hard over, the air plane should reach its maximum rolling velocity not more than 0.2 seconds later. The rolling velocity should be such that the quantity $g/\dot{\phi}^2$ is greater than 0.01, in which g is the maximum rolling velocity in radians/sec, $\dot{\phi}$ is the wing span and V is the true speed in ft per sec.² At any speed below 50 percent of maximum level speed, this value of $g/\dot{\phi}^2$ should be attainable without exceeding a control force of 80 lb for wheel type and 10 lb for stick-type controls. With the aileron flying at 118 percent of its maximum speed, the rudder locked, the airplane should not develop more than 35 degrees due to the yaw created by fully deflected ailerons.¹

•Dive Effect.—The rolling moment due to aileron should vary smoothly with the aileron angle and aileron control should always be necessary to oppose the loading wing as the aileron is moved. As the aileron is actuated, the tendency of the aileron to return to its trim position should increase. Landing gear mechanism generally require less in right degrees since dihedral thus high wing configurations to retain the same dihedral effect.

•Rudder Control.—The rudder should not require more than 100 lb of force to direct the airplane on a straight line

with one engine operative and the other engine (or engine) at full rated power at all speeds above 110 percent of the maximum takeoff speed, overcome the adverse yaw of aileron deflections at any speed, once the trim recovery requirements of the airplane.

•Directional Stability.—The worst case due to aileron should be such that right aileron is always required for a sidestep to the left and left aileron to dip to the right and in small aileron angles the angle should remain relatively proportional to the rudder angle. The airplane should always tend to return from a sidestep regardless of the angle to which it has been forced without the use of the rudder. Straight flight should be attainable by aileron, dip at any speed above 140 percent of maximum without use of the rudder and with a single engine being inoperative.

•Trim System—Rudder and aileron trim systems should be used if the control forces necessary for level flight are 75 percent greater than 50 lb for aileron wheel (50 lb for stick) or 140 lb for rudder pedals at any speed between 120 percent of the maximum speed and the maximum speed. These trimming systems should be powerful enough to produce straight flight with one engine inoperative in each engine cut at speeds above 140 percent of maximum.

STALLING CHARACTERISTICS
The opposing ruff should make it

self left essentially by developing gradually, by its increase in the pull back on the control column and by lifting of the aileron. After the stall has developed fully, recovery should be possible by aileron cut at the controls. The airplane should not tend to roll or yaw seriously when the aileron is at less than two degrees above the aileron required for a three-point landing.

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AVIATION WEEK January 5, 1948

NEW AIRCRAFT



Assault aircraft (above) with engines because a cargo plane (left)

Cargo Plane Evolves From Glider

Chase Aircraft building new 8,000-lb. payload assault craft for Air Force; plans to produce similar powered version.

By ALBERT E. SNYDER, JR.

A new general aircraft aircraft proposed by Chase Aircraft Co., Inc., Teterboro, N. J. is based by its designers as a competitor for certain purposes of the T-42 and T-43 and under cargo aircraft for Air Force combat, glider towing, and training use.

Designated the MS-7, the proposed plane will be powered by two Curtiss-Wright Cyclone 600 engines of 1,350 hp each, will have a span of 36 ft, 4 in. length 55 ft, 5 in., height 19 ft, 10 in., and gross weight of about 25,000 lb. (5,000 lb. of which will be cargo).

Although the design is still in the preliminary stage, estimates of performance indicate that it will far exceed Air Force requirements for this type craft. Preliminary figures released by the manufacturer are: Takeoff over a 50 ft

obstacle (no cargo and 50 percent fuel), 612 ft., landing over a 50 ft. obstacle design (gross weight with fuel and cargo) 122 ft., rate of climb at sea level (standard air) 1,550 ft./min., service ceiling 21,000 ft., service ceiling (single engine) 5,500 ft., maximum speed for full control 495 knots (56 mph), sea level cruise 365 knots (72 mph), cruise (maximum engine) 735 knots (840 mph), cruise, based on a 55-foot-long rate (746 mph) at sea level.

•Glider Development.—The MS-7 is a development of the NC-134 assault aircraft (howdah) which is another Chase project. The NC-134 or "howdah" is the first large assault glider using a combination of steel tube and metal skin throughout its structure. Its skin covering is made of 0.03 aluminum, except for some 0.04 gauge steel for fittings and ribs.

Wing section, identical to both the Aviatik and the MS-7, was developed by Michael Strouss, Chase president and chief engineer. It is an extremely thin section, somewhat similar to the NACA 23.8100 series, but the Strouss section is modified so that it is much more efficient. Viewed externally, the wing beam some resemblance to that of an A-26.

Atmospheric characteristics of the wing section for the speed, range, and minimal external attachment are said to be superior to those of any other known aircraft. High aspect ratio and thin section have combined to give clean lines to the plane.

The Aviatik includes advanced fea-



Cargo bay when level of permits any access for Army 1 ton truck (left), while short ramp facilitates unloading wheeled vehicles (right).





**"Honoring the Pilots of
Today who are Developing
the Airplanes of Tomorrow"**

In the 20 years since it pioneered

engines of horizontally-opposed design—the type which made possible the development of today's personal aircraft—Continental Motors has sponsored many programs for the advancement of flying. Latest in a series of such moves for the industry's long-range good is the company's establishment of a sterling trophy and a \$10,000 purse in connection with the All-American Air Maneuvers at Miami. Continental Motors hopes, by this means, to foster the initiative so vital to technical progress, to the end that the planes of tomorrow may embody speed, safety, dependability—a degree of all-round usefulness surpassing that of even the finest planes of today.

Continental Motors Corporation
MUSKOGEE, OKLAHOMA

AVIATION WEEK, January 5, 1940

NEW AVIATION PRODUCTS

Aircraft Fire Detector

Designed to function at ground test position, airplane fire detector is stated to indicate (under test specifications) above signal under allowable 5 sec. when exposed to 2,000 deg. F. direct flame and indicate "fire out" equally fast. Claimed is that false alarm cannot develop under vibration since contacts will not close without presence of heat. Number of wiper parts is reduced by having positively locked structure. Horizontally sealed, contact points and moving elements are protected from dirt and excessive arcing. Device features normally open circuit (two relays in parallel), overall length is 2 1/8 in., dia. 1 1/8 in., and weight is approximately 3 oz. Maker is Central Products, Inc., 300 Sussex St., Harrison, N. J.



Resistor Base, Heat Chafing

Development of mounting clip which, with spring tension, will hold tubing firmly close at basehead as pressure is increased by Glenn L. Martin Co. Device will be made and marketed by Popka Spring Co., 110 S. Waukeg St., Kokomo, Ind. Used on Martin 212 clip is made from stainless steel of cold drawn stock; wire and it shaped smoothly into circle, with gaskets located at four points to fit tightly against aperture edges. Used in suspended in center of aperture without touching edges, and clip grips don't tend to increase friction between the two.



Multi-Contact D.C. Relay

Bringing as many as 12 contacts in wide variety of contact combinations, new multi-contact d.c. relay is an outgrowth by Control Div., General Radio Co., Schenectady, N. Y., for use in electronic apparatus, communications,



and signaling equipment. Working from five basic arrangements, contact combinations can be adjusted to satisfy in twelve distinct switching requirements. Silver, palladium, or tungsten contacts can be had, depending on rating and size specifications. More than 500 different coils are available for use in relay, with ratings ranging from 1 to 750 v. and from 1 to 15,000 ohms. In order possible close matching of inductance and resistance with rating of energizing circuits. Two active or electric two-winding coils are also available.

Lightplane Fire Safety

New packaged fire protection system for small planes developed by Walter Kidde & Co. and distributed by Vint's Air Service, 81 Cloud, Mass., includes CO₂, bottle, piping and discharge out let of burner.



lets. Kits are now available for Navion and will be offered soon for Stinson 108, Beech Bonanza, and other small craft.

Resistors for "Tight-Spot"

Suitable for aircraft electrical circuits, precision-made magnet wire-wound resistors made by Chasot Mfg. Co., 130 Clinton St., Brooklyn, N. Y., are intended for tight spots and for facilitating parts-in-part saving. Manufactured in Corvallis, Ind., units feature wire winding on Ewe-glass core, with available by rugged lead-in checked to code, placed in plastic tube and filled and

sealed with special soldering (inexpensive) cement. Because of absence of organic material, it is claimed that resistor will not blister, crack, or change shape standard power (Type C-7) containing 1/2 by 1/4 in. with 2 1/2 in. leads is rated at 175 w. and is available in values from practically zero to 5,000 ohms; standard type (C-7A), measuring 1 by 1/2 in., is rated at 40 w. with maximum available resistance of 1,000 ohms.

Information Tips

Equipment for Refueling

For aircraft refueling machine design equipment, Aero Equipment Co., 110 South Dearborn St., Chicago 10, Ill., offers an air-to-air refueling machine for testing and proving instruments, measuring and testing.

Tests in Radio Work

Of interest to aircraft designers, engineers, and radio engineers, the new radio work test set, designed by Radio Engineering Co., 110 South Dearborn St., Chicago 10, Ill., is a complete radio test set, including a radio receiver, a radio transmitter, a radio amplifier, and a radio oscillator. The set is designed to test the operation of radio equipment, including the operation of the radio receiver, the radio transmitter, the radio amplifier, and the radio oscillator.

Survey Design Points

For use in the design of aircraft, the new survey design points, designed by the Aero Engineering Co., 110 South Dearborn St., Chicago 10, Ill., are a complete set of design points, including a radio receiver, a radio transmitter, a radio amplifier, and a radio oscillator. The set is designed to test the operation of radio equipment, including the operation of the radio receiver, the radio transmitter, the radio amplifier, and the radio oscillator.

Light Winding Equipment

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AVIATION SALES & SERVICE

CAA Plane Rental Proposal Gains Widespread Approval

Agency plans to dispose of war surplus trainers used by inspectors and rent modern lightplanes.

By ALEXANDER MCMURLEY

Proposed by CAA to direct itself at its occasionally expensive war surplus SMO trainer planes used by inspectors for travel about the country and to rent new postwar prewar planes for the same purposes from local lease operators appears likely to be approved with no indications of serious opposition in any Washington quarter.

Powerful factors in the rental proposal's chances is the fact that the plan is originally evolved by Washington aviation to Rep. Karl Stein (R, Neb.) chairman of the House Appropriations subcommittee which will pass on CAA budget requests. It was reported also that the coming before of the plan was first with the Bureau of the Budget.

► Use 250 Planes—CAA's inspectors and officials now have in use approximately 250 airplanes ranging from Douglas DC-4s and one Lockheed C-54 (aircraft lost in flying conditions) down to 75 hp two-place Kinnerops. Awaiting mainly 95 of these are two place North American SNJ Navy training planes powered with 400 hp. Pratt & Whitney Wasp Jr. engines which CAA inherited from war surplus. CAA also has some elderly Beech model 17 biplanes and some "testy" Fairchild 24.

Rep. Stein has suggested that CAA get rid of all but about 30 of its planes and rent other planes from local lease operators as they are needed. But CAA contends it needs about 90 planes for use in experimental projects and for patrol jobs checking landing aids, airways, etc. These are two and four-seater planes, including biplanes the DC-4s, C-47s, and twin Beeches and twin Cessnas, which are equipped with instruments, which the ordinary air plane rental service would not provide.

► For Recommended—John Merritt, chief of CAA's aircraft control service, has recommended a fee of approximately \$18 an hour be paid by CAA for rented aircraft, with a guarantee of 200 to 250 hours use per year which would insure the operator of a return of approximately \$2,000 to \$2,500 an

yearly for the use of each airplane, in addition to whatever he could make on it and when it was not in use by CAA.

Merritt estimates that the SNJ cost approximately \$27 an hour to operate, although CAA has been supplied with a large stock of surplus replacement parts for these planes which are warehoused at Oklahoma City.

The SNJs are generally regarded as a serious offender in airplane noise, although second to the BT-13, which CAA originally had been war surplus. In view of Administrator T. P. Wright's vigorous campaign for airplane noise reduction, it is believed advisable to offload quieter low numbers of the CAA staff, also, to fly in more quiet airplanes.

► Seek PAC Advice—Whether the SNJ on lease rental figure would prove satisfactory, probably will depend on the type of equipment which CAA wishes to rent for their flight. Future operators presently are getting about \$8 an hour

for solo time on 55 hp two place airplanes with variations reported at different fields. One midwest operator puts \$27 an hour for rental of a Beech plane Bonanza with a minimum of three hours a day.

It is understood that Administrator Wright has asked members of the Proposed Aircraft Control of the Aircraft Industries Association, for their opinion on the plane rental proposal. Member companies have generally indicated approval as a less desirable alternative to outright purchase of new postwar personal type airplanes, provided the CAA will pay an equitable rental figure which will enable the leasing operators to show a profit margin. Tentative discussions call for the operator to do all the maintenance and repair on the aircraft rented. That would eliminate the large resources need for CAA aircraft repair operations which have been a subject of severe criticism by the aviation industry as government competition with private enterprise.

If the rental plan is authorized, as it appears, it will be worked closely by both CAA and the industry and its records will provide accounting information in several channels.

► It is expected to prove data showing the expense of operating the smaller biplanes, postwar planes which should already be available to pilots, CAA purchase of such planes



DAWN PATROL ON THE BACKSEAT

The Dawn Patrol airplane base at Tuscon, N. J., is a rare survivor from World War II, operating night surveillance. Locomotive, twin-engine, a Piper Cub, a P-51, a P-40, a Stinson, and a Cessna are among the planes used to fly last hours down from Maine. In addition to G.I. Bill of Rights and regular flight instruction, Dawn Patrol operates a thriving charter business.

Joint Argentine Line Experiences Deficit

BUEENOS AIRES—The Argentine adventure in an airline owned jointly by the state and private investors has not had too successful a financial experience so far this year.

Of three national airlines and one overseas airline established under the mixed ownership pattern, one of the most active and most widely used, ZONIDA (Norteamérica Zonas Aereas de Argentina), came through the first six months of 1967 with an overall loss of \$790,000 (US \$). A yearly loss rate of one and one-half million dollars.

ZONIDA stock, says its holders a guaranteed 5 percent dividend in this loss has to be met by the federal government—on this case the Secretary of Aeronautics.

► **Expenses Exceed Income**—It is noted that income from traffic development, tourism, mail, etc., for ZONIDA has been much lower than the direct working expenses, that is, flight operations, land operations and passenger service. The losses amounted to only 1,518,000 pesos (ARG) against 1,075,000 pesos of direct expenses. General expenses of 600,000 pesos were added.

Under the major step of the line, which operates a considerable fleet of Douglas DC-6s and DC-7s and has done considerable traffic in Argentina, after two years of deficit the Secretary of Aeronautics has the right to take over the direction of the company and ascertain the cause.

The Argentine International Airlines, known as PAMA, is formed on the same principle, but has not been in the field long enough to have a line report. Considered hazard of the airlines is that while their profits are produced, their capital investment is not.

Isla Verde Airport Plan Meets Navy Opposition

SAN JUAN—The Navy Department is opposing the proposed Isla Verde international airport near San Juan. It is constructed by the government of Puerto Rico at a cost of more than \$17,000,000.

Rear Adm. Daniel E. Barbey, commander of the Tenth Naval District, has objected to construction of the airport at the site selected on the grounds it would interfere with operations of the Navy's nearby radio station, erected in



The new hangar at Moore Airport, Brown Army, is used for the DC-6s and DC-6s employed mostly for domestic service by the 11-squadron ZONIDA airline. Probably one of the largest hangars ever built in use in South America, it contains 105 x 218 x 225 ft., containing approximately 12,500 sq. ft., and includes additional departments. For three-ton, overhead cranes, machine shops with a large inventory of repair parts, and a Douglas testing unit are some of the modern features. Also in the present airport project at Brown Army is a service and major field, Enana, is under construction.

1944 and destroyed by Barbey as "The Navy's communication center for the entire Caribbean area."

Plans for the airport specify construction of a runway about 1,100 ft. from the radio station. Naval officials believe resulting noise and radio interference would compel the Navy to strengthen installations for which the Federal government paid about \$5,000,000.

► **Station Transferred**—The wireless receiving station was transferred from San Juan to its present site near Isla Verde to avoid interference from industrial plants in the San Juan area and the Isla Verde airport, center of civilian aircraft operations.

The government of Puerto Rico has created about \$10,000 in plans and surveys for the Isla Verde international airport. Acquisition of about 1,500 acres for the project is contemplated. The Puerto Rico planning board already has approved a master plan of airports which includes the Isla Verde field, with a high priority for its construction.

The Navy's decision stopped government action in San Juan. Under the Federal airport construction program, \$50,000 had been allocated to Puerto Rico as an advance to start preliminary work, and the Puerto Rico legislature had approved several appropriation acts to provide more than \$5,000,000 for the project.

Meanwhile, in formal conversations, the Navy recently turned over the Isla Verde airport near San Juan, to the Puerto Rico authorities who will assure responsibility for its control, operation and maintenance until the proposed Isla Verde airport issue is settled.

The Navy had opened the Isla Verde facilities since its construction

during the war. Thirty airlines plus military units, have been using that airport with 3,400 airline landings recorded since 1946.

Traffic Increases Noted in Philippine Figures

MANILA—Latest civilian aircraft statistics in the Philippines reveal that passenger traffic has jumped a hundred fold since being the war, while for every pound of air freight in 1951 thirty pounds are carried today.

The bulk of the domestic load is being carried by Philippine Air Lines, Inc., in their 50 aircraft. PAL recently doubled its fleet through purchase of PLAT, only other major airline in the island. The purchase enabled PAL to control its routes considerably while of ferrying passengers after which for the most part are 35 percent below prewar levels. PAL's fleet of DC-4 "Boomerangs" will shortly be augmented by Douglas DC-6s, to be used exclusively in over sea service between Manila and San Francisco (Oakland), via Guam and Honolulu, and between Manila, Hong Kong and Shanghai.

Meanwhile, Commercial Air Lines, Inc., which hitherto had operated locally on a non-schedule basis, has been granted a limited schedule permit to operate on any domestic route two times a week.

In addition, CAL makes regular flights to a number of Far Eastern ports.

The past semester also marked the suspension of Northwest Airlines service between the U. S., the Philippines, China and Japan, over what is known as the Alcanian route. Pan American Airways now maintains a five day a week service with the United States.



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AVIATION WEEK, January 5, 1948

FINANCIAL

Equipment Trusts Loom Larger In Proposals for Airline Financing

With legal difficulties still to be surmounted, carriers study substitute device in which separate corporations would buy planes and lease to operators.

With the need for additional airline financing becoming more acute, it is likely that equipment trusts may become a prominent role in the industry's capital structure.

Widespread adoption of the equipment trust device among the airlines has been slow in developing largely through the inertia that frequently surrounds legal and technical obstacles when encountered for the first time. Among the legal difficulties cited by financial authorities is the liability that may accrue to the equipment trust trustee, conditional sales, or chattel mortgage in the event of an accident. This liability could be removed by an amendment to the Civil Aeronautics Act.

Another major issue is the status of the property in the event of bankruptcy. The aircraft creditor is not considered properly protected unless he is able to repossess the operating equipment immediately. As railroad equipment trusts have the right of repossessions possession in case of bankruptcy, there is no reason why the Airline Trust Act can not be modified to give the same protection to airline equipment trusts. At present there is no satisfactory method of repossessing aircraft in liquidation and upon parts which, in the aggregate may run as high as 25 percent of the airline cost.

In the international field, even more serious is to be accomplished in order to encourage equipment trust financing. A system of international recording of financial interests in aircraft would be most desirable. Toward this end, the International Civil Aviation Convention is currently considering a draft convention providing for such recording as well as the recognition of attached rights to aircraft flying in the international air space.

Successful When Tried—To the last extent already cited, equipment trusts have met with considerable success in the air transport industry. Pan American World Airways was the first and thus far the only line to resort to true equipment trust financing among the airlines.

In January, 1938, the company sold \$2,900,000 in 4 percent equipment trust certificates to New Eastern banks. These funds were applied toward the purchase of Boeing 247's. Seven years later, Pan American had a 30 percent equity in these planes, which provided a wide margin of safety for the banks. Provisions were made for the serial maturity of these certificates over a five year period. Actually, they were retired before maturity and the planes continued in service well beyond their estimated "useful" life. The principle of this as a management device, named "pay-as-you-go"—then making possible the liquidation of the obligation during the estimated life of the equipment.

The principle of trust financing among the airlines was passed when American Airlines, late in 1935, advised a lease from the Reconstruction Finance Corporation to pay for its first fleet of DC-3's, and which gave the carrier the right of leasing or other lease in the type of equipment.

The commercial banks refused to advance any funds on the type of lease, reasoning that the industry was too volatile in general. The first RFC leaseplan entered the picture and advanced the money at 5 percent on a chattel mortgage on the planes, with American making a 40 percent equity payment. This lease was amortized on a monthly basis.

Rational Expense—Equipment trust financing has been highly successful in the railroad industry. Basically, the inherent strength of this medium is found in the indispensable character of rolling stock—freight and passenger cars along with locomotives. A railroad might have a valuable right-of-way, but it is worthless without the equipment to move the traffic. Similarly, it may be said that the airline, while having valuable "right-of-way" in the form of certificates of airworthiness and, necessarily, to be in a hopeless position without planes with which to implement operation.

It is little appreciated but when railroad equipment trust paper was first

conceived there were many obstacles encountered and reasons advanced why the railroad would never succeed. However, in the light of repeated operating experience, adjustments were made and the necessary elements fell in their proper places.

Substantive Proposal—To meet the same immediate equipment requirements of a number of the airlines and to obtain the legal questions raised thus far, the equipment trust principle may soon appear in a new guise. There is considerable discussion being given to the feasibility of separate corporations to hold title to newly acquired equipment which would be leased to the airline concerned.

The equity of this new corporation would be owned by the airline and annual payments would be sufficient to amortize the subscriptions of the equipment corporation over the useful life of the planes. This proposal was actually advanced as part of Capital Airliner's capital re-adjustment plan earlier this year, but failed to materialize.

Another possible way of creating a government owned agency to buy equipment and lease it to the airlines on a regular amortized basis. This may be done through RFC or a specially created agency connected with this activity. The advantage of this arrangement lies in obtaining any immediate capital outlay by the airline.

Indebtedness—In recent years, the rapid expansion of airline capital structure has seen the extensive creation of various forms of indebtedness. Such obligations have appeared in debentures, commercial loans both secured and unsecured, and even lease to buy arrangements. This has developed to the point where in many instances 60 to 80 percent of capitalization have been provided through borrowing. This high level of indebtedness has been attained when confronted with adverse operating conditions.

Much of this debt was originally incurred to finance equipment purchases but not always employed for this purpose. Intriguingly enough, because of the legal objections filed with equipment trusts, many concerned item items were not able to obtain the funds that by exposing certain restricting clauses, adequate protection would be afforded the lender. Actually, however, this has not always worked out as intended. In some cases, the money was diverted for plane purchases were diverted to operating purposes. Of greater importance, the borrower lost much flexibility in any future financing proposals.

Equipment trusts in one form or another, designed for a specific purpose, supplemented by additional equity financing, may yet prove the answer in supplying the needed funds to the airline industry. *Merle Altschul*

AIR TRANSPORT

Western Air Lines Blueprints Future With Five-Year Program

Carrier sees smaller dependence on mail pay; letter financial outlook results in plans to buy five more Convairs; continued inflation spiral expected.

By CHARLES ADAMS

A detailed blueprint for continuing its financial contraction of the past two months with minimum dependence on mail pay but then drawn up by Western Air Lines in answer to a Civil Aeronautics Board order issued last spring. The carrier told CAB that except for an extension from Yuma, Ariz., to Phoenix, it has no desire for additional route mileage. It added that mail pay requirements, both as a dollar and plane mile basis, should be set in 1976. From 1967 and through the year 1970, it averaged \$1.50 per mile through 1952. Budgeted there is a present figure was set in TWA's plan to "assault" the Los Angeles Las Vegas segment and to remove restrictions as the Los Angeles-San Francisco run.

Other Reports.Western's report to the Board justified offers made by Capital Airlines (PCA), Colonial, Northeast and Chicago & Southern. The Board told each of these carriers to explain their alleged minimum dependence on mail subsidies. The latter also were ordered to analyze their route patterns to determine whether routes were considered as potential and whether operations were warranted should be postponed indefinitely.

Since abandoning transcontinental operations early last year, Western's future has been mostly good. Sales at its Denver-Airport Airport route to United Air Lines late last summer yielded Western a net profit of around \$1,800,000 and put the company well in the black for the nine months. Although a net deficit of over \$600,000 is anticipated during the fourth quarter, Western's earnings for the year should be substantial.

Serks More Convairs.Planes & routes and flight pay for the future have resulted in a move by WAL's management to minimize space of the orders for new equipment which was cancelled in November, 1966. At that time, Western ordered its own Convair 440s from 28 to 32 and its contract for DC-6s from 10 to 5.

Western now desires plan to boost its order for 10 Convairs to 15. The five additional planes would cost \$375,000 each (including spares, engine and would be placed in service around the middle of 1969. When Western first ordered 28 Convairs in the spring of 1966, the purchase price per seat was about \$325,000.

Future Fleet.Support now operated by WAL consists of 17 DC-6s, 5 DC-4s, 1 cargo C-47 and 1 cargo C-54. Plans call for adding the cargo C-54 early this year and delivery of 10 Convairs by July 1.

Availability of Convair is expected to make 4 DC-6s surplus when July 1, and Western hopes to sell them for a total of \$170,000. Expected delivery of five additional Convairs by July 1, 1969, will make WAL's fleet 22 DC-6s in place, and the carrier plans to sell them for about \$325,000. Thus the WAL fleet at the end of 1969 should consist of 15 Convairs, DC-4s and a cargo C-47.

Report Problem.The Convair will be fitted into Western's schedule pattern on the basis of an average block-to-block speed of 190 mph. Subsidizing of the carrier's DC-6s is now based on a 150 mph block-to-block speed, and the DC-4s have a 194 mph block-to-block speed. Bureau reports by top WAL executives indicated serious airport problems involving use of the Convair north of Salt Lake City on routes 19 and 32, but these difficulties can be corrected.

Western said CAB that difficult terrain and a shorter haul than the industry average have caused higher operating Western's average passenger load is 79 per cent against 45 for the 16 domestic trunklines.

Traffic Surveys.During the first nine months of 1967, 64.91 percent of Western's domestic passenger miles were flown over mail 41 (San Angeles-Salt Lake, 26.78 percent over route 11 (San Diego-Salt Lake City), 7.99 percent over route 19 (Salt Lake City-

Great Falls, Mont.), and 0.85 percent over route 32 (Great Falls to Lethbridge, Alberta). Both routes 19 and 32 are seasonal when considered on the light of present-day load factor require funds for bank loan operations, WAL said.

The carrier told CAB that it is "intensely dependent" upon the interest of route 31 segments north of San Francisco to Portland and Seattle on which service began Aug. 1. Airline publicly asserting from the DC-6 modernization the development of traffic on this as well as all other WAL routes during the fall.

Foreign Routes.Present plans call for integration of Los Angeles-Mexico City operations on July 1, 1968, with actual flights each morning with DC-4s. Extension of route 52 north from Lethbridge to Edmonton, Alberta, is hoped for about the same time. Rights for operation of both routes must be obtained from the Canadian and Mexican governments. Western is seeking a position of the two foreign links will greatly benefit its domestic route structure.

Except for the foreign extension, Western has indicated interest to all but three of the routes to which it is committed. It is prepared to begin flights to San Bernardino, Cal., as soon as it gets permission to use the Army's airport there.

Salt Lake Problem.Bob Kuehler, of St. George, Utah, offered different problem. Both have populations of less than 4,000, and WAL actually questions the economic feasibility of serving the passenger base at its airports. In addition, in its survey report by Chicago & Southern and Northeast, doubt was expressed that service could be sustained, or, in some cases, sustained at a number of points on their routes without some sort of substantial subsidy.

Western believes its present full costs a too high and rate to incorporate despite the addition last spring of its mail-only cargo fleet which placed in artificial form under the loads offered. The maximum capacity factor boosted the carrier's 1967 mail pay rates as anticipated \$343,000 to cover them at \$1,800,000.

New Firms.Seagull-WAL would like to have its mail pay lettered directly to its passenger load factor—a formula already set up by CAB for Pioneer Air Lines and Continental Air Lines. "Such a formula," the carrier declared, "would enable our gross monthly income and disburse the six months statement

on monthly property cycle.

Despite last spring's adjustment, Western said it would need \$1,540,000 in additional mail pay for 1972 to earn as it prevails on its investment. In 1968 the carrier believes it will need about \$1,750,000 additional to earn an 8 percent profit and an 1969 total of \$1,752,000 additional. After 1969 WAL believes it can make an 8 percent profit under the mail pay formula now in effect.

Need to Reduce.Total mail pay needed for 1968 to start a plane mile is \$1,310,000 (23.6 cents a plane mile). Western told CAB. Need in 1967 will be \$1,518,000 (23.6 cents a plane mile), in 1968 \$2,494,000 (27.1 cents a plane mile), in 1969 \$2,613,000 (23.6 cents a plane mile), in 1970 and 1971, \$1,965,000 (21.2 cents a plane mile), and in 1972, \$1,272,000 (18.2 cents a plane mile).

Western thinks that with the help of the most efficient Convairs now available will decline despite a new broad spread of rates on this. As mail pay increased since which can be placed in effect July will cost about \$175,000 a week for the year as a whole.

Costs Rise.Wage level in 1948 is expected to be 10 percent higher than in 1947, and the 1949 level will be an another 10 percent. Western believes Convair costs will rise 10 percent this month and another 7 cents in July, while oil prices will be up 2 cents a million this month and another 6 cents for next October.

Present outlook for the Western link to South 1947 adds a net profit balance of around \$1,344,000 despite the 507,000 loss expected in the last quarter. Revenue estimates are expected to total 197,000 tons, but the carrier expects 214,000 tons in 1945 as a 3.6 percent drop.

In 1948, under the present mail pay rates, Western anticipates a net loss of around \$95,000 and 205,000, 100 revenue passenger miles. In 1949 the carrier expects \$710,000 net profit and 242,000,000 revenue passenger miles, and in 1950, \$1,567,000 net profit and 337,000,000 revenue passenger miles.

CAB Disturbed By AAA Mail Pay

All American Airlines has been granted a mail pay increase which will have effects going back to May 1945, but the Civil Aeronautics Board is ordering the bank, named of its possible backfire.

The Board noted that "the increasing cost to the government of AAA's pickup operations" would be an appropriate basis for a new increase, the postal service or the national

British Deficit

Perfor post that \$1.8 million have not been used in closing deficits for the 1946-47 period is provided in the letter statement of British European Airways, one of Great Britain's three main state-owned airlines.

From Aug. 1, 1946, when BEA was established, to May 31, 1947, the carrier lost about \$5,400,000, according to a summary of expenses published as part of a government white paper. In that period, the company, which operates Great Britain's interest and continental services, flew 72,000 passengers about 33,000,000 revenue passenger miles.

Western thinks that with the help of the most efficient Convairs now available will decline despite a new broad spread of rates on this. As mail pay increased since which can be placed in effect July will cost about \$175,000 a week for the year as a whole.

New Rate.Mail rates set for All American are for the period May 30, 1947, to May 31, 1948, 49 cents a revenue mile. For the period beginning Sept. 1, 1948, 51.79 cents a plane mile based on present schedule of 16 roundtrips daily over the entire 1,524-mile route. A rate of 79 cents a mile will be applicable to any segment over which the Post Office may at the future reduce mail subsidies to one roundtrip daily.

During the 12 months ended Aug. 26, 1946, AAA's former rate of 38.26 cents a mile actually yielded the carrier 41.02 cents a mile. CAB's latest order will make an additional mail payments aggregating around \$500,000 for 1946, 1947 and 1948.

The Board allowed All American 7 percent profit on its increased investment for the 15 month period ended Aug. 31, 1946, and an estimated 8 percent profit thereafter.

Reconstruction.Partial replacement of single-engine Stinson Reverts with four-engine Beech D64Cts in November, 1946, resulted in increased plane mile costs. CAB said in view of the age of the Stinsons and the increasing difficulty of meeting safety and operations requirements with that type of plane it would find AAA's demand to replace the Stinsons reasonable.

But the Board emphasized that except for safety considerations substitution of 518,000 Beechcrafts for the Stinsons would hardly have been justified for the same reason, in view of the comparatively small revenue increase, the postal service or the national

James Ray, Adams Submit Resignations

Resignations of James C. Ray as vice president of Southwest Airports Co. and Alvin F. Adams as board chairman and chief executive officer of California Southwest Airports were received at the West Coast Airline last month.

A feeder airline pioneer, Ray reported to establish a consulting service for short-line carriers following his resignation as president, which is to become effective only five months. Under Ray's guidance, Southwest carried 75 percent of all passengers handled last year by U. S. feederlines.

Arthur De Witt Smith, head of the New York-based consulting banking firm bearing his name and No. 2 stockholder in California Airlines, has become president of the Transcontinental Airports Line. Adams, who took over active management of the firm's carrier last fall following the resignation of president J. J. O'Brien, will remain as CEA's board of directors. The post of board chairman was abolished.

Other Personnel Changes.
American-David R. Sawyer has retired without approval of airline directors in New York.
Washington—J. M. MacIntyre, the first 31-month director of the United Airlines, has become vice president of engineering and maintenance.
New York—William E. Dunnington has been appointed assistant to the national director of the United States and Airways.

William Armstrong-Charles P. Goodrich, former director of United Air Lines, has been named director of the United States and Airways. He will be responsible for the airline's operations, including the airline's share of air and traffic for the airline.

Charles-Harold R. Butler has been named director of the airline's operations, including the airline's share of air and traffic for the airline.

ALPA Attacks Case Against AA Pilot Sisto

Lugano mountain hangar involved American Airlines check pilot Charles Sisto, who caused the crash loss of a DC-4 on October 1, 1966, after the crash on Mount Baldy, Tex., Oct. 1, ended late last month in Los Angeles after charges that the flyer was being "tried."

The ALPA said informal testimony in preliminary investigation of the DC-4 incident were being used to "hang" Sisto at the funeral hanging in Los Angeles adding that the pilot was "innocent" and "not flying." Even though the ALPA warned a "single" might have to compete voluntarily or future accident inquiries if such penalties continue. The position declared that Sisto on Oct. 15 voluntarily agreed to submit to a preliminary investigation of the crash but sent the plane into a dive.

Post Office Sees Air Mail Profit in 1950

The Post Office department estimates that the air mail deficit will amount from \$14,919,499 during the 1949 fiscal year to \$12,115,000 for fiscal 1948 at the existing five-cent per cent rate.

In testimony before the Air Mail Subcommittee of the House Post Office Committee, headed by Rep. Edward Keen (R., Kans.), the Department opposed an increase in the rate on the grounds that the impact on volume of the five-cent rate will justify it by the 1949 fiscal year. In that year, the Department estimates that its annual deficit under the five-cent rate will be only \$4,776,000, compared with an estimated \$11,146,000 deficit under a one-cent rate, and a deficit of \$25,993,000 under an eight-cent rate.

For the current 1948 fiscal year, the Department calculates that its deficit under a one-cent rate would be \$30,861,000, or \$9,257,000 less than under the five-cent rate. At an eight-cent rate, the deficit would be an estimated \$24,894,000. For 1950, the Post Office predicts a deficit of an estimated \$20,053,000 under the five-cent rate, a profit of only \$358,000 if the rate is boosted to six cents, and a deficit of \$29,724,000 if the rate is raised to eight cents.

National Science Drive Revived in Congress

Sen. E. B. Thomas (D., Utah) plans to revive the drive for a national science foundation in this month's Congress.

The measure passed by the last session of Congress was vetoed by the President who objected primarily to the administration laid down for the foundation. It would have been composed of a board of part-time experts and headed by a director elected by members of the board. The President indicated apprehensions that the outside interests would merely use the foundation as a vehicle for their own ends, and would probably have consultations with major corporations, would govern their actions on the government agency.

Thomas, an administration Democrat, believes that the President's administration is unwarranted, and points out that benefits of education throughout the country are composed of part-time members. He plans to confer with the President before introducing a new bill, in an effort to reach compromise on the administration issue. Thomas believes that there is some likelihood that Congress would authorize a foundation headed by a Presidentially appointed director, at long as job-making power

was lodged with the board of directors. However, if the President insists on having policymaking authority to direct a presidentially appointed director, as a board of directors immediately appointed government employees, there appears slight chance for enactment of national science foundation legislation. The President is expected to start this type of organization would be too deeply entrenched in politics.

Two other measures, designed to promote scientific development in the National Academy of Sciences, introduced by Chairman Walter Anderson (D., N. Y.) of the House Aeronautics Committee, are due for Congressional action this session.

Legislation authorizing the Army, Navy, and Air Force to designate groups of civilian experts to deal with specific scientific or technical projects and to furnish the cost for research, development, or test facilities essential to the execution of such projects.

Legislation authorizing the Army, Navy, and Air Force to designate groups of civilian experts to deal with specific scientific or technical projects and to furnish the cost for research, development, or test facilities essential to the execution of such projects.

CAB Issues Reports On WAIL, AA Accidents

Probable causes of two Western Air Lines accidents in the mountains of Southern California during November and December, 1946, and of an Aero-Union accident south of Mexico City, last year, have been determined in carefully-sounded CAB reports.

The pilot's action in making an instantaneous landing without previously establishing a positive radio link is probably caused the crash of the DC-3, Aero-Union White Mustang, 14 miles south of Leticia, Calif., on Nov. 11, 1946, according to CAB. Contributing to the pilot's action were conditions of recent flight, wind in excess of anticipated velocities, precipitation with an unusual amount of radio conversation, and suggestion of the Newell, Calif., radio tower. All 11 occupants of the plane were killed.

Pilot Error—CAB also attributed the crash of a WAIL DC-3 as Capt. George Monahan—three miles from Leticia, Calif.—on Dec. 14, 1946, to pilot error. The report and the fact was considered at an altitude which would not clear obstructions "due to an error by the pilot in determining his position with respect to Laguna Mountain." All 11 occupants of the plane were killed. Subsequently, the WAIL plane involved in both the Leticia and Mr. Lugo crashes left the pilots only 75 ft above the terrain. No evidence of malfunctioning of the aircraft, engines or radio was found in either case.

Engine Failure—Attribution of an accident on following line of power in both engines as a result of fuel starvation probably caused the crash of a WAIL DC-3 south of Mexico City, last year, on Dec. 23, 1946, in which the pilot and co-pilot were killed. Shortly before the accident, the crew indicated that the engines were going bad and that they were desirous to look for an opening in the overcast.

As the plane dipped into the overcast, carburetor air forced rapidly and could not be dissipated. Resulting fuel starvation which crippled both engines has not been determined.

New Labor Scale

A proposal that employees earning \$300 or more a month in salary or fee be exempt from the overtime requirements of the Fair Labor Standards Act has been presented by the aircraft industry to new union administrator William R. McCord.

Industry views were given by Edward Jan Gieseler, assistant for Glenn L. Martin, at hearings in progress in Washington on McCord's proposals for revising regulations 141, which define executive, administrative and professional employees and outside salesmen. These groups, and persons engaged in local installing, are not covered by the new labor law.

Gieseler stated that among the major aircraft manufacturers he spoke for at the hearing were Glenn Martin, Cessna-Wheel, United, Bell, Piper, Stearman, Cessna, Fairchild, Avco-Lycoming, Grumman, Republic and Ranger on the east coast. Also Douglas, Lockheed, Boeing, Northrop, North American and Consolidated Vultee on the West Coast.

Air Force Shifts

Five more top Air Force generals have been shifted in assignments, indicating the Air Force terms "mobile transfers." These are believed to be only the forerunners of about 15 such changes scheduled within the next few weeks.

Major General Albert F. Hegenberger, to office of deputy chief of staff for material, special weapons group.

Major General Howard M. Turner, from commanding general, First Air Force to deputy commanding general, Air Defense Command, Mitchell Field, N. Y.

Brigadier General Thomas C. Dyer, from assistant chief of staff, Berkeley Field, to be commanding general, Williams Field, Chandler, Ala.

Brigadier General Aubrey L. Moore, from commanding general, Williams Field to commanding general, Goodfellow Field, San Angelo, Texas.

SHORTLINES

Aerovias "El" S. A.—Shut-out CAB for a foreign air carrier permit to fly between Havana, Cuba, and New York via Washington. The Havana-based company, which flies some domestic routes, Cuba and Key West, Fla., would use DC-4s on the new link.

Chicago & Southern—States that CAB's action regarding transportation of service by CAB between Minneapolis and Kansas City (Aviation Week, Dec. 4) was illegal and has asked the Board to set aside the order. CAB's original air order was issued last 72 hours before CAB was to open the new link, and the company said the Board's "unconscionable" action resulted in a loss of some \$15,000 in one-plus "uninsured" damage to its reputation.

MM-Cincinnati—Reports net loss of \$31,580 in November compared to a net of \$8,500 in the same month last year despite a 6 percent gain in operating revenues. Company flew 5,242,114 enroute passengers from an 49,232 passenger load factor in November, 1947, against 5,766,966 revenue passenger miles and a \$4.49 net load factor in November, 1946.

National-WCA, has granted official approval for company use of ILS with a 500-ft. maximum ceiling. —, Capitol completed its first year of operations in Cuba on Dec. 15 with a record of 15,000 passenger flows into Havana and 20,000 flown to the U. S. via the Tampa and Miami gateways.

Northwest—Has awarded its picture for a mail pay increase filed last month (Aviation Week, Dec. 4). The company states it needs \$3,943,000 in additional operating for the 14-month period between Nov. 1, 1946, and Dec. 31, 1947, to break even on its domestic routes. Based on the \$2,842,000, a revenue return on the company's contract must be requested. Petition filed last month asked \$1,497,000 (plus a fee for petition for October 1947 only). Request for \$1.54 a ton mile next year (October 1947) and on after Jan. 1, 1948, was not changed in the new petition.

Trans-Canada—Hopes to integrate twice weekly flights between Montreal and Bermuda with 40 passengers DC-4B by early spring. Communications facilities are now being installed and the traffic staff is assembling in Bermuda.

United—With December flight schedule, company expects 1947 enroute passenger miles to total 1,227,775,000, up 14.4 percent over 1946. Revenue passenger miles were up an estimated 9.5 percent to 10,666,000; freight up 127 percent to 10,172,000 ton miles, or plus up 13.5 percent to 6,797,000 ton miles.

and had down 11.4 percent to 8,525,000 ton miles. November revenue passenger miles were down 3 percent from the same month last year.

CAB SCHEDULE

Jan. 4. Hearing on Board's investigation of Consolidated Aircraft Third Airway route. (Continued 111)

Jan. 10. Hearing on requests of United and Chicago & Southern for removal of enroute stops on Chicago-Houston service. (Continued 101 and 102)

Jan. 11. Hearing on additional service on Hamilton Island. (Continued 100 and 101)

Jan. 17. Hearing on West. B. A. Petition for additional permits between and between routes. (Continued 104 and 105)

Feb. 1. Hearing on Board's investigation of Northwest routes. (Continued 110 and 111)

Feb. 18. Hearing on Air Line-Pan Am route application for Eastern Air Lines and United-Continental Airlines. (Continued 103 and 104)

Feb. 18. Hearing on additional service in New England area. (Continued 117 and 118)

Feb. 21. Hearing on CAB-Continental's petition for Chicago, Indianapolis, route case. (Continued 113)

Mar. 1. Hearing on additional service on Hamilton Island. (Continued 100 and 101)



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eng to him. The ironic fact is that operators, both at home and abroad, have been held up for exorbitant prices or sold faulty goods due to a simple inability to locate trustworthy agents dealing in legitimate engines at fair and equitable prices.

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Steeley P. Davis
F.H. Steward



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Praising The CAA Inspector

Some readers will say it was the softening influence of Chairman O'Brien may recall that on previous occasions this page has been turned over to the views of pilots who disagree with us. At least, in addition to being a newspaper, the letter separated below, praising the majority of CAA inspectors, should be a sensible topic for that belonged here.

Although the last editorial on inspectors was printed here several months ago, Capt. Max Balluff, guiding light of Sparta School of Aeronautics at Tulsa, Okla., was still sending over it at the recent National Aviation Clinic. We took time to wait his comments. They have just arrived.

In our opinion, several of Captain Max's arguments merit the print because he forgets one important fact—that in business life reform runs encounter competition and eventually are eliminated to their own financial loss. CAA officials and employees, however, should be obligated to serve the public, who pay their salaries. Informal public servants, we think, are too often protected from that competition and penalties for inactivity by outwitted Civil Service regulations and by stupid bureaucracy.

We have a queer philosophy that the public can demand far return for what it finances. We have faith in the fair-mindedness of the airports. If government fails to make the proper changes the far-reaching majority demand, it is up to that far-reaching public to squawk, and loudly. Thus, understandably, we backed the UPMA proposal to keep a life of complaints out of sheet CAA inspectors by ten thousands of members who are mechanics, plane owners and pilots, and fuel line operators.

Widespread complaints about a few inspectors, citing specific instances, are enlightening, and furnish a basis for reporting to CAA public servants accused by the inspectors. Furthermore, this method makes it difficult for CAA to hide the extent of complaints and any failure to follow them up. We think any independent clearing house of spontaneous public opinion on CAA, or any other publicly supported agency in a useful manner of democracy. Thus, we uphold UPMA's proposal, and will do.

T. P. Wright has made progress in his CAA cleanup and reorganization, including improvements in the inspection service. But we cannot go as far as Captain Balluff. Nevertheless, both sides deserve a hearing, and competent public servants are also deserving of a pat on the back.

Following is Captain Balluff's letter, and his own nominations for mentioned criticism:

I am a regular and faithful reader of your editorial. They are timely, convincing and based on good fact finding, but the one on "Outrageous CAA Inspections In Lucite" seems to me to be an exception. You went overboard the James Balch's paragraph in the United Pilot & Mechanic Bulletin. I like him and admire his efforts. But I don't think that column of his was worthy of the majority of far-reaching public in this business. I get several a

lot and have a lot less others in the business. I have rarely heard a complaint about a CAA inspector and, when I did, I wasn't convinced.

Admitted that we do have some that are not perfect, and admit that they are only human. I have observed that the inspectors that CAA inspectors were well chosen, well trained and competent men. I believe they compare very favorably with any group, in or out of the government service. In the past years I have reported specific, I cannot recall a single instance of mistreatment. I do know of scores of instances of use and fair treatment and many instances where inspectors made special efforts to render rapid service, some issues with personal maintenance to themselves.

I believe that any reasonable complaint ideas in a regional administration would be given for consideration. If that didn't work, I'd bet that Administrator Ted Wright would see personally that the report gets proper fair treatment.

Here is what I think is wrong with Jim Balch's approach and view:

1. You revile the inspectors that many CAA inspectors are showing the public. That is not true. In speaking of a minority who don't you are low about 495, 195, 50, 10.

2. You shake at the public and professional dignity of every inspector on the staff.

3. You say nothing about the procedure that sets up inspectors to figure how it can be done. Why doesn't Balch tell us the same not set up a card file of successful operations, mechanics who do good work, and pilots who deliberately violate the regulations, and others who are opposed to any and all CAA men? Another main job, I am sure.

4. You propose and espouse a system of something that is contrary to democratic principles, the size of his pay, and the public role. What ethical right has UPMA to maintain such a lack?

5. Nothing or just about having the majority's rule of the day. Even if the inspectors could talk, a UPMA, a competent agency to consider evidence and make judgment?

I think the approach should be from the opposite direction. If means are to be saved, let's have about the good men, the men who have worked quietly and faithfully in quiet service and have shown good judgment and tact in their dealings with a group that is made up of many bad people and also a small minority that is not so good. Long ago I was told that "you can catch more flies with sugar than with vinegar." If you will get recognition by the good men in CAA, and men whom they are the majority, they will probably will want to get on your list. If they don't appear, a lot of good people are wonder why. Here are a few. These are some of the men in CAA and at Sparta approach to these issues, time cooperation and this Aviation 10 day. We probably have longer lists than this, but in a hurry.

A. M. Allen
D. K. Arkin
W. H. Bailey
William M. Berry
F. M. Boudin
W. M. Brydson
Francis Carpenter
E. L. Coffey
George Chisholm
M. F. Christie
H. H. Cole
T. Conners
M. F. Cress
C. F. Drown
L. C. Elliott
W. R. Goshen
J. T. Goss
W. G. Goss

B. Griffin
E. F. Gish
R. W. Hoffman
Harold Holt
J. T. Irish
W. Jarvis
John Paul Jones
L. W. Keith
W. R. Keith
M. F. Kish
R. D. Lindsey
L. Livingston
G. Lyle
C. F. Madison
D. A. Miller
J. M. Miller
J. M. Miller
William S. Mount
J. W. Wills

Harold Overby
W. H. Peltier
R. F. Schuler
Charles E. Sharp
P. S. Stone
Ken Stumpe
M. Stumpe (Foot Works)
M. Stumpe (Foot Works)
S. E. Tovar
M. F. V. Vail
A. A. Voloshin
C. W. Van Kleeberg
J. F. Waga
John W. Wick
Ed Wilson
J. T. Wilson
C. L. Wilson
W. H. Wills

AVIATION: Where issues letters from find here operation and others on Max Balluff's expression, and CAA inspectors in general.

ROBERT H. WOOD



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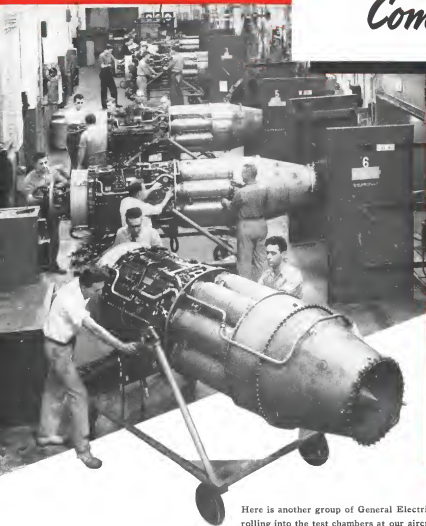
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